

"Seasonal-to-Interannual Ocean Variabilities: Combining Altimetry and Models"

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Variabilities of the ocean are studied by combining satellite altimetry and an ocean general circulation model, with special focus on the seasonal-to-interannual variability of the Pacific Ocean. The effort is part of a longer term project that aims to create a physically consistent optimal description of the global ocean covering the entire TOPEX/POSEIDON period and beyond. The initial analysis utilizes altimetry and XBT measurements as the primary data base, but will eventually incorporate all types of observations. The model, based on the MIT general circulation model, is nearly global extending from 80S to 80N with a 1-deg spatial resolution that telescopes to 1/3-deg near the equator. The model incorporates advanced mixing schemes (GM and KPP) with a 10 meter vertical resolution in the upper 150 meters, so as to accurately resolve upper ocean processes. A dual adjoint and Kalman filter/smoothen approach is employed for assimilating observations. Results of the study will be described including analyses of the model skill, forward and backward sensitivities of the model circulation, and strategies and properties of the assimilation schemes.